



*Overview of International Activities on Flexibility  
ISGAN, Annex 6 Power T&D Systems*

---

*Susanne Ackeby  
Genk, 12 September 2017*

# ISGAN Annex 6

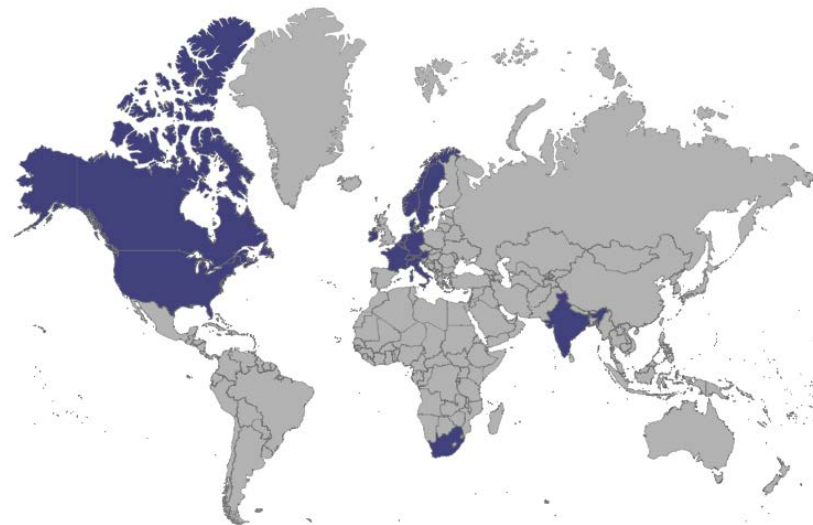
## Power T&D Systems



Austria  
Belgium  
Canada  
Denmark  
France  
Germany  
India  
Ireland  
Italy  
Norway  
Netherlands  
South Africa  
Sweden (lead)  
Switzerland  
United States



- Facilitate the use of smarter and stronger power grids given significant trends in the industry (electrification of the energy system, integration of large amounts renewable energy sources, aging infrastructure, integration of information technology systems, etc)
- Condense to conclusions and recommendations for policy makers

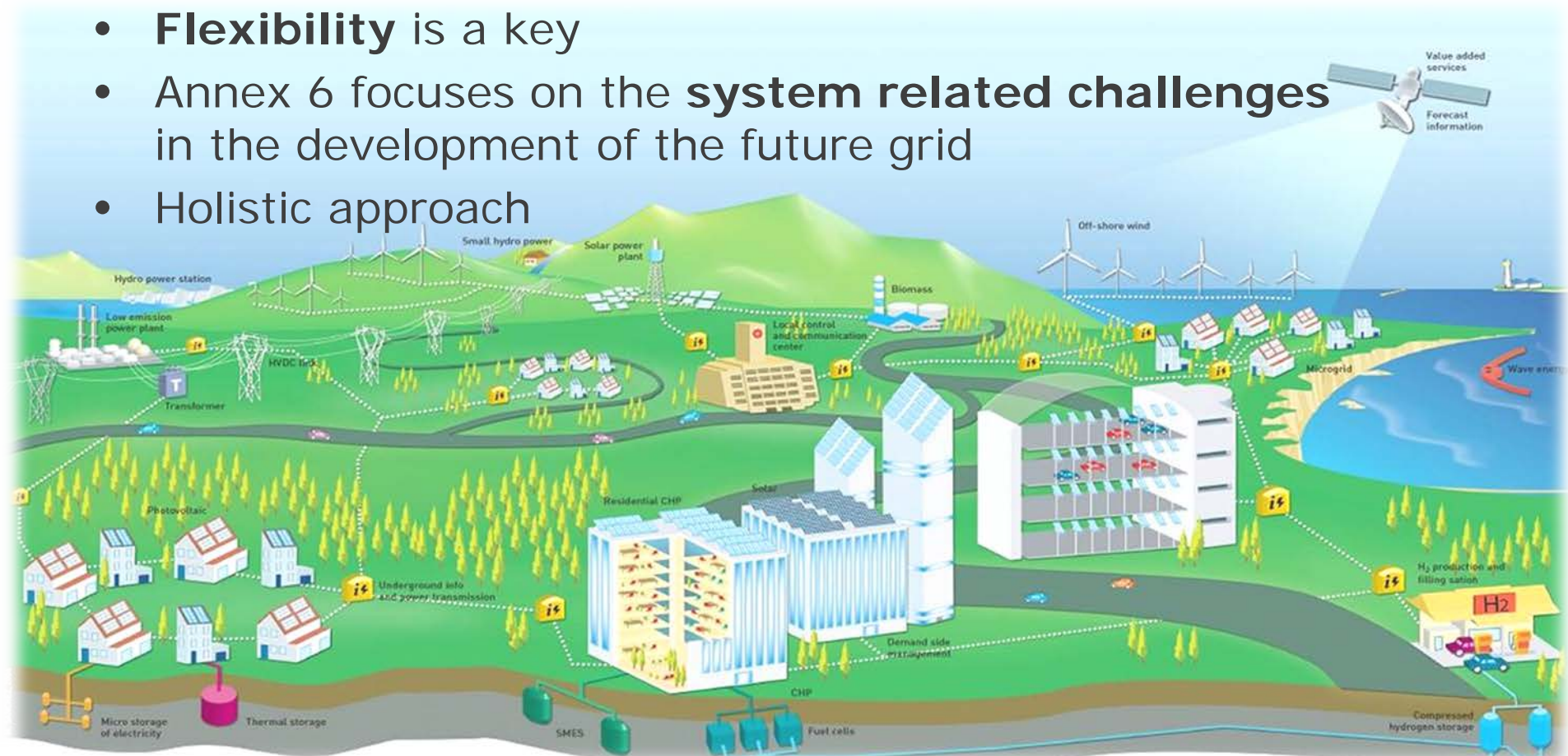


# ISGAN Annex 6

## Power T&D Systems



- The vision of ISGAN is the attainment of national, regional and global **clean** energy and climate goals
- Increasing share of renewable energy sources
- **Flexibility** is a key
- Annex 6 focuses on the **system related challenges** in the development of the future grid
- Holistic approach





# Published materials

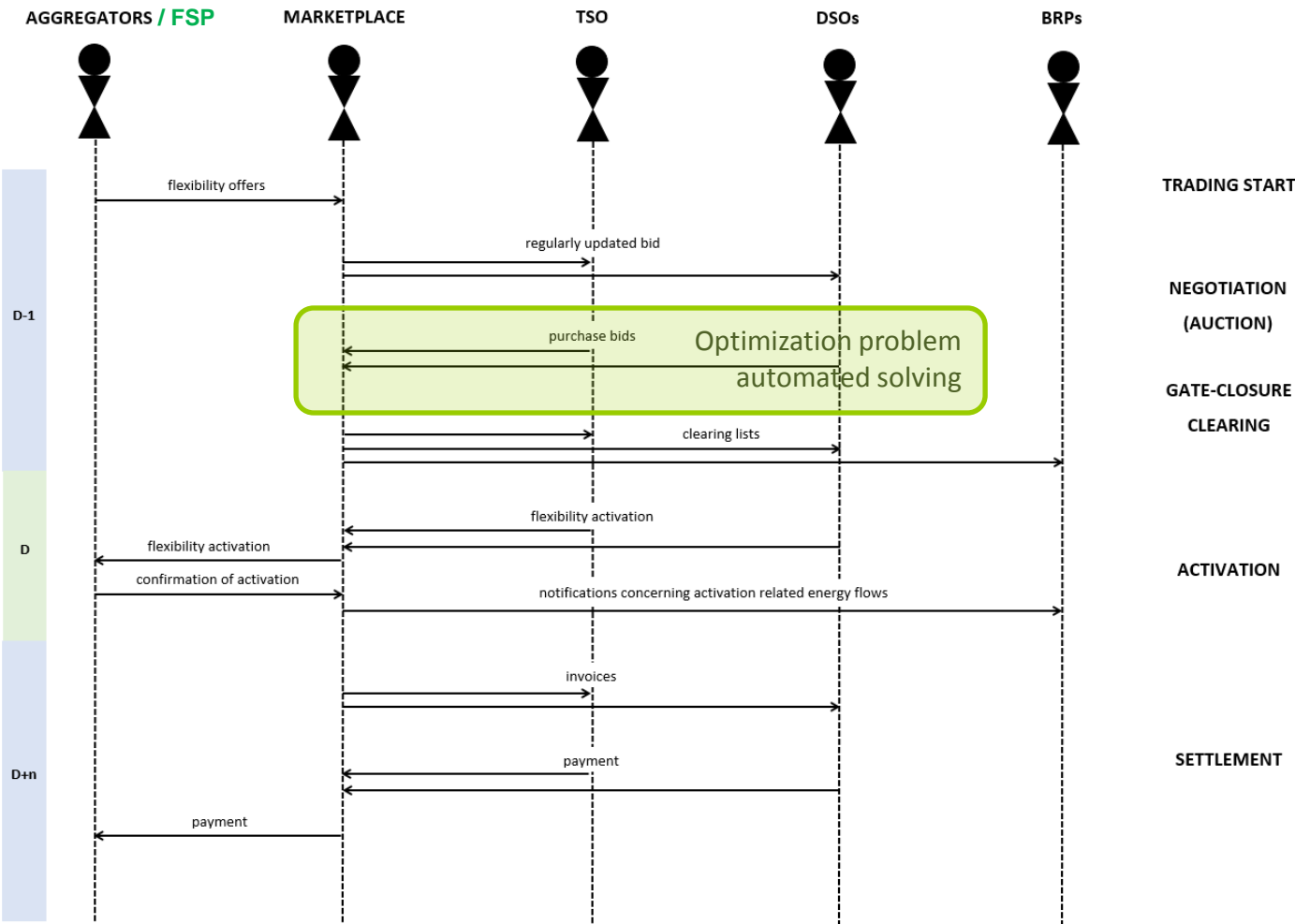
## *Single Marketplace*



- A **increasing need for flexibility** is expected
- Some **framework to use distribution connected flexibility** to support distribution and transmission network operation will be needed
- Activation of flexibility by one system operator should **not harm grid operation** of others
- Would it be possible to install **one marketplace** in which all flexibility bids are collected and from which TSOs and DSOs can procure flexibility in a coordinated way?

ISGAN Annex 6's latest discussion paper:  
*TSO-DSO interaction – A Single Marketplace for Flexibility*

# Single Marketplace Implementation



# Single Marketplace

## Key messages



- The single marketplace is a lean and transparent concept
- Could theoretically lead to an economic optimum for the entire system, while respecting technical boundary conditions
- Concept builds on existing market implementation, role of DSO would evolve
- Prerequisite: a liquid market, with sufficient flexibility offers
- Assumptions and simplifications should be validated first, e.g. through market-theory-based analysis
- ICT requirements for its implementation have not been assessed yet



*The discussion paper is meant to open discussions, not claiming to present THE solution*

# Ongoing discussion paper on

## *System efficiency*

- **Energy**, especially RES energy, is not wasted
- **Greenhouse gas** emissions are avoided, or at least minimized
- Economic **costs** are reduced, or at least not increased

*Identify ongoing initiatives, regulatory policies and R&D work worldwide that tackle and address efficiency-related aspects in future electricity grids*



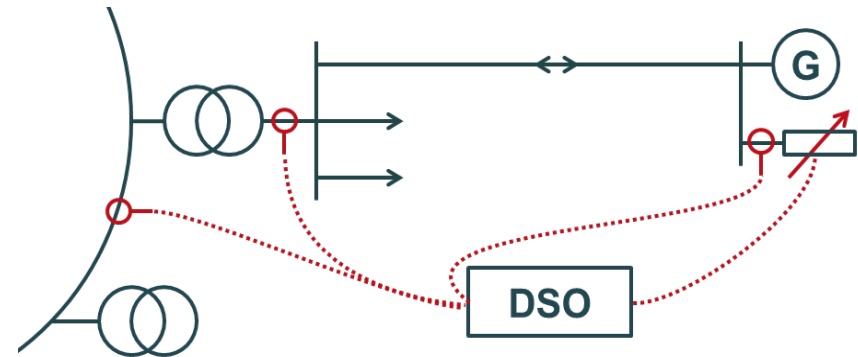
# Ongoing work

## *System efficiency*



Selected action areas:

- Multi-energy systems
- Electrical storage
- E-mobility
- Demand side management
- Automation & sensor technologies



[ISGAN A6 case book: Spotlight on Smart and Strong Power T&D Infrastructure]

## Multi-energy systems

- Regulatory changes, incentives, funding programmes...
- Increasing interest to use the flexibility from e.g. heat networks to deal with variability of RES
  - power-to-heat concepts to offer secondary and tertiary balancing control reserves



# Thank you for your attention!

## Contacts:

- Suanne Aceky OA Annex 6  
[Susanne.ackey@stri.se](mailto:Susanne.ackey@stri.se)

## Further reading:

- ISGAN website:  
<http://www.iea-iscan.org>
- ISGAN Publications:  
<http://www.iea-iscan.org/index.php?r=home&c=5/378>

